

The Black Box Newsletter

VOL. 1, NO. 2

"Goodevening HBO"

"Captain Midnight" gained national media attention this month by providing a short demonstration of his uplink technical know-how to programmers and viewers when he interrupted national broadcasts of Pay TV with his simple anti-scrambling message.

His performance sparked widespread media coverage by all major networks and wire services and drew attention to unfair practices of the cable industry in its efforts to coerce satellite programmers to scramble.

Second Satellite Scrambling Hearings to be Held.

In Washington, D.C., Rep. Tim Wirth announced that the second satellite scrambling hearing will be held on Thursday, June 12, 1986.

Wirth stated, "I want to ensure that satellite dish owners have access to programming, and can enjoy that access at competitive prices." He also said, "We will take a serious look at the recent satellite signal jamming incident by 'Captain Midnight'. This jamming is terrorism of the airwaves and it poses a threat to our nation's communications network."

Boresight News Presents Video Cypher II Series.

Boresight News, (which airs Thursdays at 8:00 P.M.CST on SpaceNet 1, transponder 17), has begun a series which provides the viewer with information on techniques which can be used to 'turn on' a VC II descrambler.

So far, viewers have been shown how to enable the video, and how to secure and record authorization signals for future use. Upcoming shows should be very interesting!

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For All You "Captain Midnight" Fans:

We are not "Captain Midnight". While we are pleased that his transmission resulted in a great deal of publicity concerning the unfairness of scrambling, we cannot condone his actions. Jamming satellite signal transmission is illegal, and could result in permanent damage to a satellite. This could hurt us all.

Jamming a satellite transmission isn't too difficult. In general, it takes an exciter device, a TWT (Traveling Wave Tube) with 30 to 50 db power gain with 3-4 watt output, a Klystron (water cooled preferred) that generates 500 watts in the 6 ghz range, and a 15 foot dish.

However, before you think about becoming the next "Captain Midnight", be aware that there are ways to identify the equipment you are using by its waveform on the satellite, and that if you transmit from any populated area in the US, you will probably get caught and will be severely punished (fine & jail).

As a final note, imagine what could happen if someone knocked out some vital military or weather satellite while just fooling around. The long term results could make all our lives much more difficult.

Burglary at Black Box Offices:

In the early morning hours of April 17, 1986, unknown persons broke into the offices of The Black Box Solution and stole satellite receivers, test equipment, computer components, and some very valuable technical documents.

The motive of the burglary is unknown, but we do not keep any Black Boxes in our retail offices, and this burglary is one reason we choose not to disclose the location of our research facilities to anyone.

By the way, we did recover most of the items taken, and we do encrypt all data in our computer files so that our customer lists will always remain confidential.

Black Box from Korea:

The first batch of Black Boxes built in Korea were seen in the U.S. and Canada last week. We were able to get our hands on one of these boxes for testing, and found that they work with only minor adjustments.

Based on the design found in The Black Box Solution, these Korean built boxes use production quality components, and needed only minor tweaking to descramble all video on the satellites.

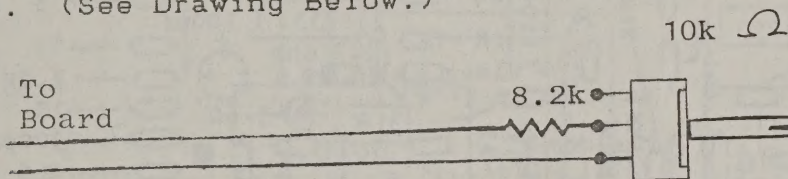
These Universal Video Decoders will probably retail for about \$240.00 U.S. funds. We'll provide ordering information as soon as it becomes available. See related article next page for a phone number to order an assembled "Black Box."

Black Box Updates:

- * Bag of Parts has a new phone number: 1-201-562-1229.
- * Another source for the board and all the parts is DC Electronics. 1-602-0945-7736.
- * North Tech Electronics also has the board & parts kits. Their phone number is 1-705-544-8253.
- * If you can't find 3pF caps, you can use adjustable 2.8 - 12.5 pF trimmer cap. GC Calctro part number A1-252.
- * The 5-60 pF trimmer can be substituted with a 7.1-60pF trimmer. This is GC Calctro part number A1-247.

We all know how touchy the horizontal and vertical controls are on the Black Box, well thanks to J.T. B., we have a simple cure:

Remove the 20K Horz. Lock Pot, and replace it with a 10K pot (Linear Taper). An 8.2k, 1/4 W, 5% resistor must be add in series with the pot to keep the overall resistance approximately the same. (See Drawing Below.)



Service Work Available for Black Boxes:

Encycloware (715 Washington St., Ayden, NC 28513. 1-919-746-3589) now provides full support for the Black Box. They offer printed circuit boards, repair service, aligning & tweaking, and are also developing a video tape showing the step by step assembly process of The Black Box. For more information about their services, give them a call.

Assembled Black Boxes Available:

We've been testing a "Black Box" that is being manufactured here in the U.S., and it has worked real well, even under the worst of conditions. If you saw us in Dayton, Ohio, at the Hamfest, you saw one of these boxes in operation. It is a well built unit.

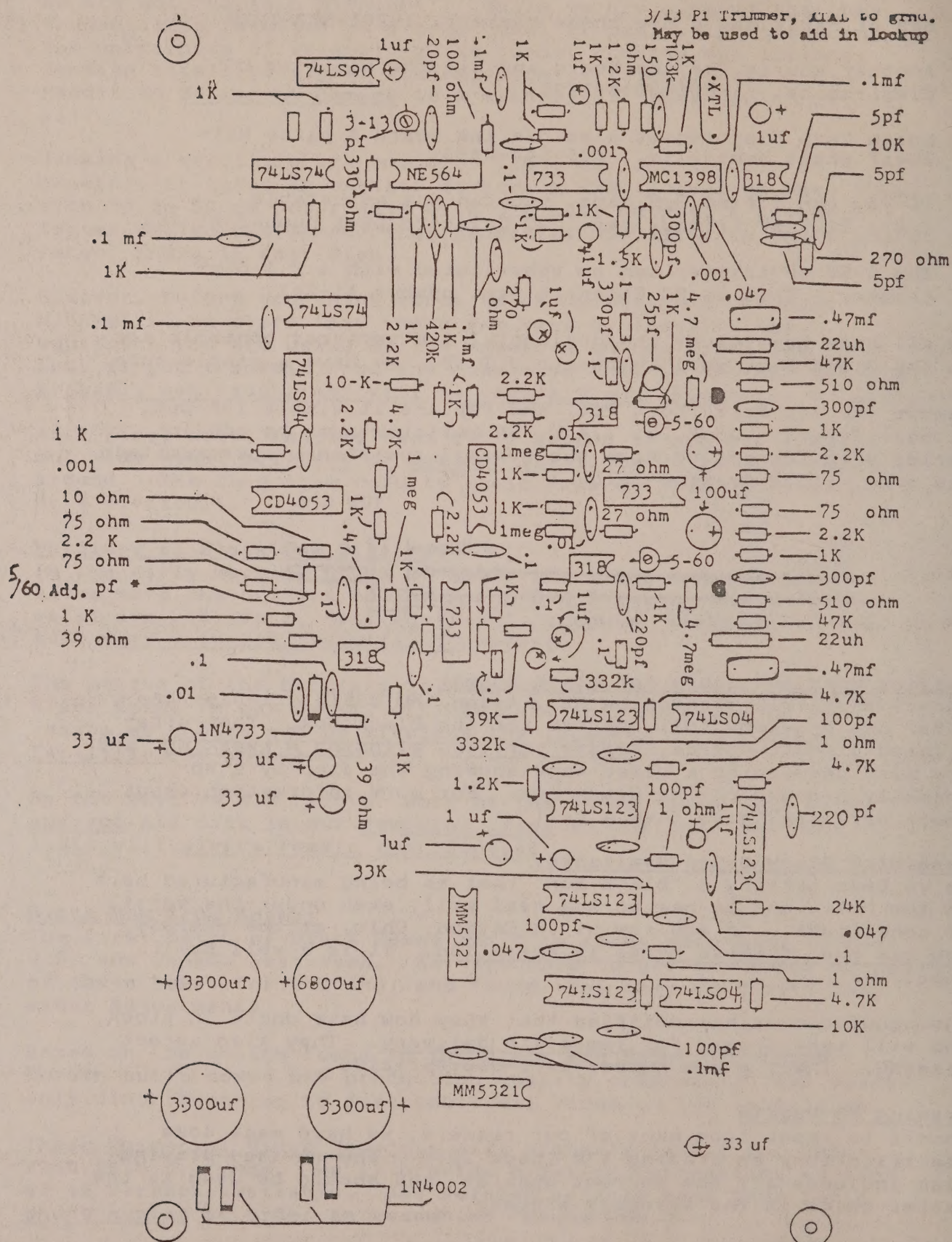
The manufacturer has notified that they now have units in stock, and will take orders for immediate delivery. They also accept Visa/MC. Their phone number is 1-512-257-2196.

Drawing #8 Update

Thanks to input from many of our readers, we have made some clarifications to drawing # 8 (page 26). The revised drawing also includes all the current updates, and should be used as the master guide in the assembly process.

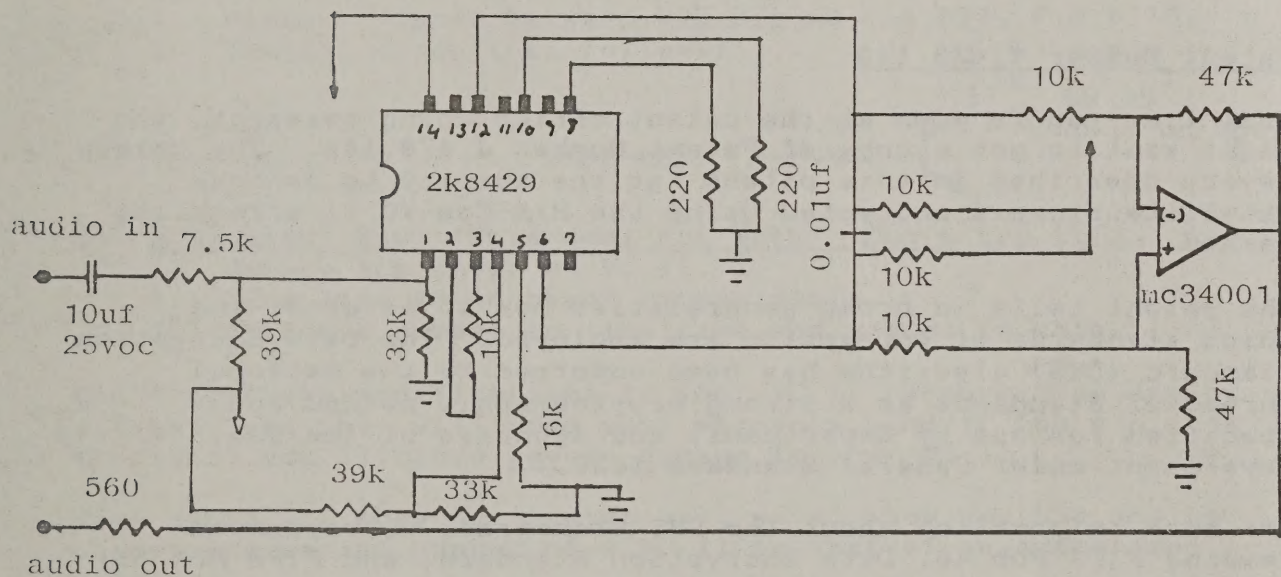
Black Box Solution

Drawing # 8



This Audio Circuit was supplied to us by J. Ford, and he assures us that it works. He also says that his company will be offering a complete audio board that will be a simple add on to your "Black Box".

The next issue of this newsletter will carry updates to this circuit, and an additional audio circuit.



More From Nuts & Volts

Nuts & Volts, (published monthly by T & L Publications, (1-714)-632-7721), carried several ads in the May issue for Cable TV & Satellite de-scrambler plans, kits, and complete units. Prices range from \$8.95 for a Cable Facts book, to over \$300.00 for completed units.

Some companies to call for more information:

Crosley	514-739-9328
Ponderosa Trading Company	303-634-6666
Scramco	317-632-2744
Teleview Distributing	312-766-1827
Educational Satellite Systems	219-365-8085
N.A.S.	213-631-3552
Custom Satellite & Electronics	313-722-9381

A word to the wise. Don't order anything from companies that don't offer money back guarantees. We know of at least one company (not listed above), that accepts only cash and never delivers.

Patent Number 4,479,142

Next time you're down at the patent office doing research, you might want to get a copy of Patent Number 4,479,142. The unique device described in this patent has the ability to de-code satellite signals encrypted using the M/A-Com VC II scrambling method.

The patent tells in broad generalities how it is done, and which standards of encryption are employed. The Data Encryption Standard (DES) algorithm has been endorsed by the National Bureau of Standards as a strong cryptographic method and specified for use by Departments and Agencies of the U.S. Government under Federal Standard 1027.

For more information about the DES standards, we recommend reading FIPS Pub 46, Data Encryption Standard, and FIPS PUB 81, DES MODES of Operation. Both of these publications come out of the National Bureau of Standards.

M/A-Com Problems

In the latest report on earnings by M/A-Com, we find that the company lost over seven million dollars last quarter, and as a result are consolidating their operations, as well as re-organizing upper management. It seems that the company has been hurt by the slow sales in satellite equipment and decoder boxes.

M/A-Com may find out that they committed corporate suicide by introducing scrambling into the satellite industry. Wonder what will happen to scrambling, if M/A-Com goes under?

Cracking the VC II

In recent weeks many people have found different ways to turn the VC II decoder on. I'm sure that most of these people are like us and are doing it for "purely research reasons", and are not trying to illegally use any satellite signals.

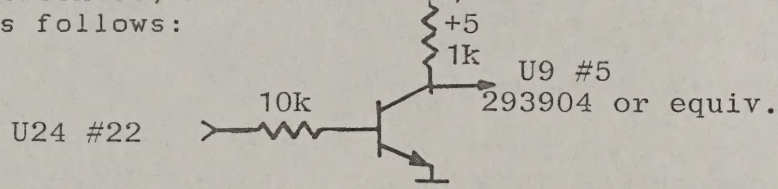
Well for you "research" people, here are some ways to activate the VC II box, (this information presented as technical information only, and is not intended to be used by anyone in an illegal manner!).

A. As seen on Boresight.

1. Open case, remove front panel and get to chip set.
2. On Chip U17, jump pin 8 to 1K resistor then to chip U8, pin 13.
3. On chip U13, jump pin 4 to 330 ohm resistor to trim pot resistor then to IC U8 Pin 15.

B. Another Way.

1. Open case, remove front panel and get to chip set.
2. Isolate Pins #2 & #5, on U9.
3. Place a jumper between U9, Pin #2 and U24, Pin # 18.
4. Install circuit as follows:

C. A Mythical Way! (This does not work! Don't try it!)

1. Remove top cover of VC II.
2. Find line #5 on black ribbon cable.
3. Attach a jumper to line five and ground to case.

Don't do these modifications to your VC II because they may be illegal, and they will void your warranty, and if you don't do it right, you'll cause severe damage to your VC II.

Next month (if they don't stop us), we'll show you the way to change the serial number of a VC II to that of an authorized unit.

Manuals for Sale

- | | |
|---|---------|
| 1. Black Box Solution | \$49.95 |
| (Includes Year Subscription to this Newsletter) | |
| 2. M/A-Com VC II Patent Information | \$15.00 |
| 3. Data Encryption Standards | \$15.00 |
| 4. DES Modes of Operations | \$15.00 |
| 5. Gated Sync Pulse Descrambler Plans | \$29.00 |

You may order any of these products from Black Box Solution by calling 1-501-321-1845.

The Black Box Solution

4014 Central Avenue
Hot Springs, Arkansas 71913

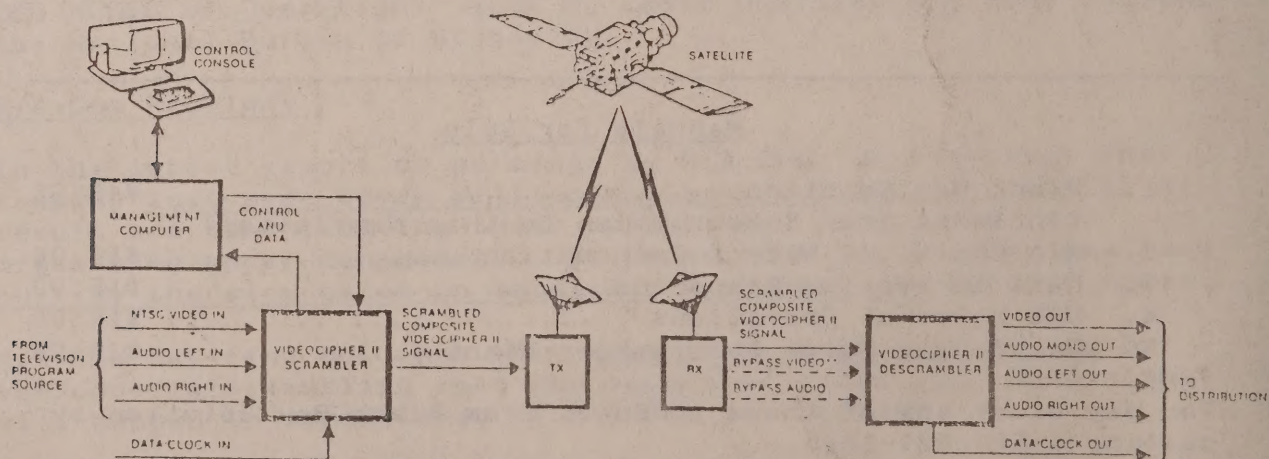
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Confidential: Satellite Decoder Information Inside!

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NTSC STANDARD (UNTCHAMBERED)
SIGNAL IN BYPASS MODE

VIDEOCIPHER II SYSTEM BLOCK DIAGRAM